

APSUO STEERING COMMITTEE AND PARTNER USER COUNCIL MEETING



DENNIS MILLS

Deputy Associate Laboratory Director for X-ray Science
Photon Sciences Directorate

January 26, 2022

Argonne National Laboratory

OUTLINE

9:10 am – 9:50 am

- Universal Proposal System Update
- New Business
- Upcoming Events

11:20 am – 12:00 noon

- BES Review recommendations regarding changes to GU Program and Enhancement of APSUO SC Membership
- GU Review Background and Update
- GU Survey Results
- Discussion on the APSUO SC Organization/Structure

UNIVERSAL PROPOSAL SYSTEM (UPS)

Collaboration among APS, NSLS-II, and LCLS

- Contract with CRI Advantage (CRI), a ServiceNow partner and longtime provider of IT services and solutions to the federal government
- Software as a Solution (SaaS) on the ServiceNow platform to support the proposal management process
- Agile approach - iterative approach to software development that helps teams deliver value to their customers faster
- Virtual “workshops” being held among subject matter experts (SMEs) from the facilities
- Local stakeholders (including facility management) are being engaged for feedback
- Programming effort happening in parallel with governance development
- Change management planning underway with support from Argonne
- Ongoing planning for testing (2022) and final implementation (post-Upgrade) being developed in line with progress based on agile approach

UPS SPRINT TOPICS

Major efforts amongst 3 partners to collaborate, find synergies, and ensure optimized experience for the users and administrators without loss of function

- Core Configuration: branding, workflows, data table structures
- User Experience: authentication via ORCID id, user interface, and platform design
- Dashboards and reporting: role driven
- Review and allocation processes (probably the most diversity among facilities)
- Scoring and aging
- Integrations and data import/export (APIs)

NEW BUSINESS

- Liquid Nitrogen Supply
 - Airgas declared a “Force Majeure”* affecting deliveries to the lab until Jan. 28th . *“unforeseeable circumstances that prevent someone from fulfilling a contract”
 - Airgas attempting to maintain at least 65% of previous levels. OK, until run starts but minimize unnecessary LN2 usage, if possible.
- Planning underway for repair of concrete on final two APS superdoors (A&B) during May shutdown (& relocate power cable)
 - Sectors 1-11 would be affected
 - Similar to previous. Power down 3-5 days.
 - Details forthcoming

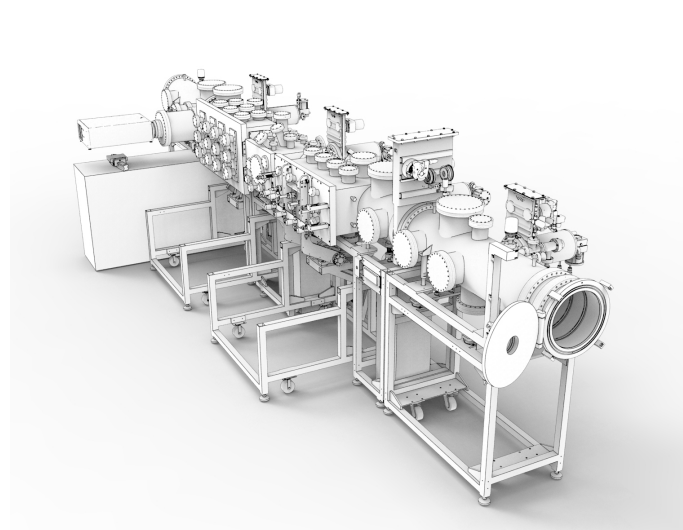


NEW BUSINESS

- APS services pre-, post, and during the dark period
 - Mechanical Operations and Maintenance (MOM)
Mechanical, Water, Vacuum
 - Mechanical Engineering and Design (MED)
 - Survey and Alignment (S&A)
 - Safety Interlocks (SI)

will be in heavy demand.

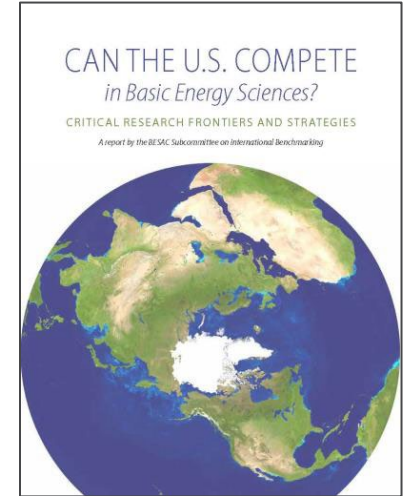
- To assist in our planning, if you need and/or were planning on using these services during this time, please let Mohan know by March 11, so that he and the upgrade teams can plan accordingly.
- We will be sending out an e-mail in the next several days to all CAT ops managers with more details.



NEW BUSINESS

International Benchmarking Assessment

- **BESAC Charge:** to identify critical research areas in basic energy sciences; to examine U.S. competitiveness in these areas, in major research facilities and tools, and in funding mechanisms; and to suggest strategies that could enhance the U.S. position in comparison to its global competitors
- **Finding:** in critical areas, China is surging, Europe leads in quantum information science, and the U.S. is flattening or falling behind
- **Strategies for Success:** Increased investment in research, facilities, instrumentation; greater support for early- and mid-career scientists; improve opportunities for facility staff scientists; better integrate energy sciences research from basic to applied to industrial



“While facilities in the U.S. set the pace technically, demand for access to them far exceeds their current capacity; access to comparable facilities is more extensive in other countries, especially in Europe. Additionally, supporting resources such as the number of staff scientists available to assist both university and industrial users of these complex facilities are more extensive outside the U.S.”

Recommendation:

“Striking a balance between the need to develop world-leading facilities and the need for access to and technical support of existing facilities would increase research impact and help retain talented scientists.”

NEW BUSINESS

Steve Kevan announces retirement



Dear ALS Community,
After 10 years on the ALS management team, the last four as ALS Director, I will be retiring later this year. I will continue actively leading the ALS over the next several months while the Energy Sciences Area conducts the search for a new ALS director.

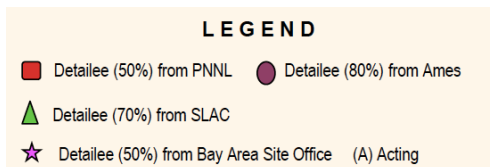
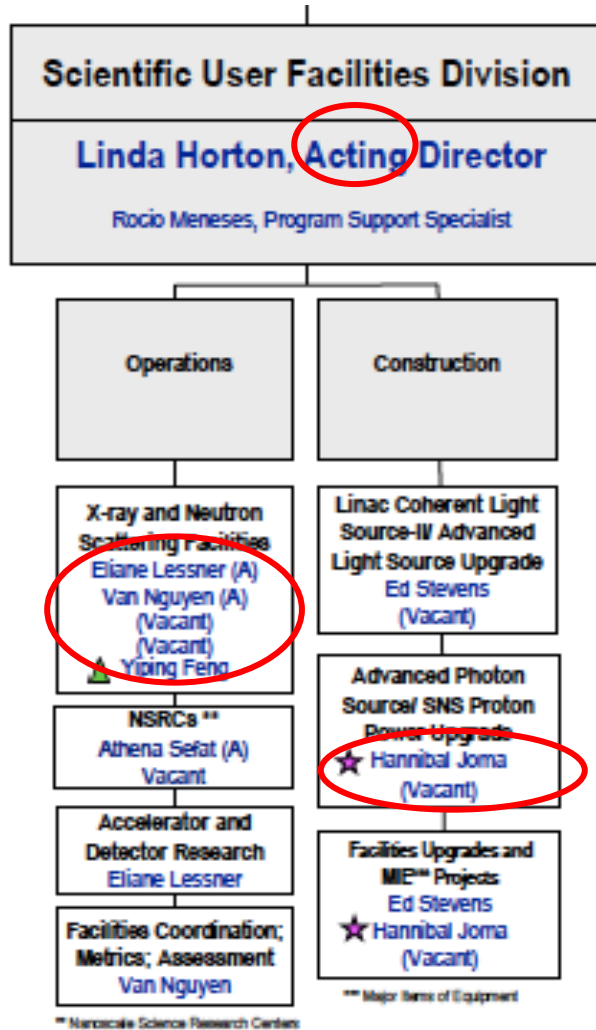
Leading the ALS and serving the ALS user community have been highlights of my career, and I am very proud of what we have all accomplished together. ALS staff working with ALS users enabled us to build and commission important new beamlines and instruments, to work safely, and to do impactful science in many areas.

MANY CHANGES AT BES/SUF AS WELL

Retirements:

- Jim Murphy
- Peter Lee
- Thiyaga Thiyagarajan

BES expects to be able to post Thiyaga and Peter's SUF positions soon, and are looking for help in identifying strong candidates for these roles.



APS SAC MEETING AND BEAMLINER REVIEWS

- The next APS Scientific Advisory Committee (SAC) meeting is April 6 & 7.
- As usual, we have the SAC BL reviews the preceding 2 days.
 - LRL CAT
 - IMCA CAT
 - HP CAT
- Agenda is still a work in progress, but discussion topics will probably include”
 - APS & APS-U Update
 - BES Triennial Review outcome
 - other current items of interest

APS SAC Members

NAME	AFFILIATION
Almo, Steven	Albert Einstein College of Medicine
Chiu, Wah	SLAC/Stanford
Dattelbaum, Dana	Los Alamos National Laboratory
Faber, Katherine	Caltech
Gaffney, Kelly	SLAC/Stanford
Gilbert, Benjamin	LBNL
Greene, Laura	MagLab (Florida)
Hoelz, Andre	Caltech
Jones, Kevin	European Spallation Source
Leapman, Richard	NIH
Levine, Lyle	NIST
Mans, Douglas	EMSL/PNNL
Murray, Conal	IBM
Parkinson, Dula	ALS/LBNL
Penner-Hahn, James CHAIR	University of Michigan
Schroer, Christian	DESY
Woloschak, Gayle	Northwestern U

AGENDA FOR 2022 APS/CNM USER MEETINGS

	MONDAY MAY 2	TUESDAY MAY 3	WEDNESDAY MAY 4	THURSDAY MAY 5	FRIDAY MAY 6
morning	<p>APS WK1: Multi-modal X-ray Imaging using multiple APS beamlines. Current status and future upgrade</p> <p>CNM WK3: CO2 capture and conversion into value added products</p>	<p>APS WK1: Multi-modal X-ray Imaging using multiple APS beamlines. Current status and future upgrade</p> <p>CNM WK3: CO2 capture and conversion into value added products</p>	<p>CNM WK2: Current Trends and Opportunities in Nanobiointerface Materials</p> <p>APS WK5: Dark Field Dark field x-ray microscopy for mesoscale phenomena in ordered materials at APS-U</p>	<p>APS WK5: Dark field x-ray microscopy for mesoscale phenomena in ordered materials at APS-U</p>	<p>Special Session: DEI discussion</p>
afternoon	<p>Joint WK4: Machine Learning at the Edge for Real-time Analysis and Experimental Steering at Synchrotron Light sources and Nanoscale Centers</p>	<p>Joint WK4: Machine Learning at the Edge for Real-time Analysis and Experimental Steering at Synchrotron Light sources and Nanoscale Centers</p>	<p>CNM WK2: Current Trends and Opportunities in Nanobiointerface Materials</p> <p>APS WK8: Materials for Neuromorphic Computing: Operando Studies to Optimize Performance</p>	<p>APS WK10: Impact of Bright Sources on EXAFS Measurements and Analysis</p>	<p>Steve Heald Retirement Celebration</p>
	MONDAY MAY 9	TUESDAY MAY 10	WEDNESDAY MAY 11	THURSDAY MAY 12	FRIDAY MAY 13
morning	<p>Combined Plenary</p>	<p>CNM Facility Plenary</p> <p>Special Session: APS Upgrade Q&A</p>	<p>APS WK6: X-ray scattering of Emergent Quantum Phenom. in 2-D layered Materials.</p> <p>CNM WK7: Ultrawide bandgap materials for microelectronics</p>	<p>APS WK9: Accelerated Advances in Energy Storage Systems Enabled by APS and APS-U</p>	<p>APS WK11: Advanced Spectroscopy and LERIX (ASL) Workshop</p>
afternoon	<p>APS Facility Plenary</p>	<p>Poster Session</p>	<p>APS WK6: X-ray scattering of Emergent Quantum Phenom. in 2-D layered Materials.</p> <p>CNM WK7: Ultrawide bandgap materials for microelectronics</p>	<p>APS WK9: Accelerated Advances in Energy Storage Systems Enabled by APS and APS-U</p>	<p>APS WK11: Advanced Spectroscopy and LERIX (ASL) Workshop</p>

NATIONAL SCHOOL ON NEUTRON AND X-RAY SCATTERING

NXSchool this year, July 10-22, 2022

- ANL experiments: 7/19-7/22
- Application submission deadline: March 7th



NX-school discussion meeting

Jan. 27th, Thursday 10am in <https://argonne.zoomgov.com/j/1602722767>

- planning for NX-school this year
- planning for a concept for next year during APS-upgrade dark period

All interested beamline staff are invited!

Uta Reutt (APS) and Stefan Rosenkranz (MSD) are the ANL POCs



QUESTIONS



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RECOMMENDATION FROM TRIENNIAL REVIEW RELATED TO THE APS GENERAL USER PROGRAM

BES encourages the APS to use the upcoming dark period to critically evaluate the current proposal review process and develop an improved process with potential to grow the APS userbase to exploit its world leading coherent hard x-ray capabilities. In addition, evaluate the current organization structure of the APSUO to ensure broader representation of the APS userbase and to improve communication between the APS and the scientific community.

Quick reminder of the GU Program review process already underway:

- The review team is divided into three sub-committees:
 - GU Program Overview
 - General User Proposals
 - Proposal Review Process

- Sub-committees were encouraged to communicate with each other to minimize duplication of effort and to ensure that all aspects of the GU program are covered.

- Benchmarking with other facilities' user programs is encouraged.

REVIEWERS

GU Program Overview

From	Name	Affiliation	Role
APSUO	Carlo Segre	MR-CAT	CAT
APSUO	Fan Zhang	NIST	User
APSUO	Mark Dean	BNL	User
BAC	Denis Keane	DND-CAT	CAT
PRP	Barbara Lavina (UNLV)	HP	User
PRP	Joe Strzalka	SAXS	XSD
PUC	Lisa Keefe	IMCA	CAT
XSD	Gilberto Fabbris	MM/XSD	XSD
XSD	John Okasinski	MPE/XSD	XSD
Mills	Steve Sutton	CARS	CAT
UO	Connie Vanni		UO

Chairs are listed in bold

Each sub-committee has a member of the User Office to assist in answering questions about current GU program policies and procedures and to provide data or information to the members.

General User Proposals

From	Name	Affiliation	Role
APSUO	Anthony Chappaz	Central Michigan	User
APSUO	Christine Piro	Franklin & Marshall	User
APSUO	Zou Finfroc	XSD/CLS	User
GUAC	Keith Brister	LS-CAT	CAT
BAC	Jeff Eastman	MSD/ANL	User
PUC	Michael Becker	GMCA	CAT
XSD	Kamila Wiaderek	SRS/XSD	XSD
XSD	Don Walko	TRR/XSD	XSD
Mills	Meimei LI	NE/ANL	User
UO	Jessi Krzemien Czyz		UO

Proposal Review Process

From	Name	Affiliation	Role
APSUO	James Walsh	Umass	User
APSUO	Jesse Yoder	IMCA CAT	CAT
GUAC	Mary Upton	IXS/XSD	XSD
PRP	James Kaduk	Structural Science	User
PRP	Marcus Young	Scatt- app mat	User
PRP	Eric Landahl	Pump/Probe	User
PUC	Spencer Anderson	LS-CAT	CAT
PUC	Maddury Samayazulu	HP-CAT	CAT
XSD	Saul Lapidus	SRS/XSD	XSD
XSD	Volker Rose	MIC/XSD	XSD
UO	Bev Knott		UO

GENERAL USER PROGRAM REVIEW UPDATE

- In an attempt to get feedback from the broader community, when the BES annual survey was sent out, I added several additional questions related to the GU program.
- The results were shared with the 3 Subcommittee Chairs for discussion within their teams.
- Still hoping to get recommendations from the 3 Subcommittee in the March/April 2022 timeframe.
- This would mesh well with the deliver of the test version of the new proposal management software.

GU PROGRAM SURVEY RESULTS

1. Has the current General User Proposal aging policy (Proposal Review Panel score is improved by 0.2 each time the proposal is not allocated beamline for up to two cycles) helped or hurt your chances of getting beamtime?

Helped	261
Hurt	15
Other	148



- 2 How can the aging process be changed to make it more equitable to the user community as a whole?

Make no changes (keep it the ...	310
Change the reduction in the P...	17
Eliminate the aging policy	29
Other	63



GU PROGRAM SURVEY RESULTS (cont.)

3. How would you say you benefit from the proposal aging process?

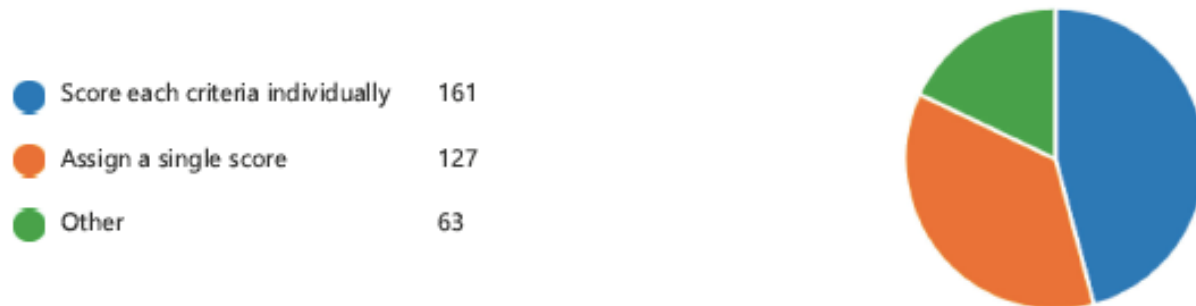
- I have two well cited papers from more exploratory beamtimes which scored low for being speculative but got time based on the current aging process.
- Reduces uncertainty due to small fluctuations in ratings. Requires fewer submission attempts for the same proposal.
- Pioneering proposals and/or new projects are usually difficult to get beamtime, the aging system helped those proposals that are very important to the scientific community.
- We work in a field (SAXS) that sees a diverse range of research proposals. Some research is, by definition, not as sexy and appealing as others. Batteries vs Rocks, which one looks more interesting? An aging system helps to level the playfield for these different research disciplines.
- The aging system is extremely valuable for training. New researchers (students and postdocs) often have difficulty writing high-scoring proposals (this is part of the training). The aging system encourages them to submit proposals without worrying too much about the immediate outcome.
- Prevents the beam time from being monopolized by a specific group.
- Incorporates uncertainty in proposal scoring, provides a soft cutoff on highly subscribed beamlines.
- At “facility X”, I have had high-scored proposals with no negative comments that were not awarded beamtime because they were on the cutoff. I wish they could age-up and get run. Instead I have to respond to a report that has no negatives and submit the same proposal again, which is a waste of my time and reviewers' time.

GU PROGRAM SURVEY RESULTS (cont.)

4. Rapid access protein crystallography proposals are reviewed by providing a score of 1 to 5 for each of several criteria defined by the APS:

- a). Quality of research
- b). Impact of research
- c). Need for a 3rd generation source
- d). Potential for publication

Should the PRP score regular proposals against a set of criteria rather than assigning a single score as is currently done?



GU PROGRAM SURVEY RESULTS (cont.)

7. Is the 2-year expiration date for general user proposals the right length?

● Yes	389
● No, it should expire after 1 year	13
● Other	37



8. How should the Proposal Review Panels be aligned? (Select all that apply.)

● By technique	106
● By science discipline	113
● By beamlines	82
● By a blend of the above (as th...	280
● Other	8



GU PROGRAM SURVEY RESULTS (cont.)

11. Is there a proposal submission system at another facility that you believe is a good model for the APS?



12. If you answered Yes to question 25 above, please indicate which facility/facilities:

No consensus – nearly every light and neutron source was listed at least once with SSRL listed the most number of times.

GU PROGRAM OVERVIEW SUBCOMMITTEE INTERIM SUMMARY

- GU Program Overview Subcommittee (11 members) has met as a group five times, and has also had many smaller breakout sessions
- Review is organized around 7 major questions (6 from the charge)
- While not yet finalized, several key recommendations are likely:
 - Recommend APS create a new access mode for industrial users beyond measurement access mode; expect strong negative impact of the 50% CAT time change on industrial users.
 - Recommend the BAC continue. An effort should be made to make the function of the BAC clearer to the community and, in particular, PRP members.
 - Recommend, as part of continuing focus on DEI issues, the APS should publish annual demographic data on the GU program and user community.
- Opinions about continuation of proposal aging are currently split on the subcommittee; we recognize that the survey clearly shows community support for continuing aging.

slide courtesy of Denis Keane

RECOMMENDATION RELATED TO THE APSUO

BES encourages the APS to use the upcoming dark period to critically evaluate the current proposal review process and develop an improved process with potential to grow the APS userbase to exploit its world leading coherent hard x-ray capabilities. In addition, evaluate the current organization structure of the APSUO to ensure broader representation of the APS userbase and to improve communication between the APS and the scientific community.

- APS plan: collect information from other Office of Science user facilities, and benchmark against international facilities, to determine how the structure, governance and composition of their committees are supporting the mission of user engagement.
- We would appreciate your thoughts on how to expand the representation of the user community on the APSUO
 - simply expand the number of members on the Executive Committee
 - elect representatives from various fields (geosciences, physics, engineering, etc.)
 - elect representatives from technique areas (SAXS, PX, imaging, spectroscopy, etc.)
 - other ideas.....

RECOMMENDATION FROM TRIENNIAL REVIEW

Current by-Laws regarding membership:

- Each regular member has a three-year term, except for the Past Chair who may have up to a four-year term on the Steering Committee.
- Steering Committee members may be re-elected.
- The Steering Committee shall also include a position for a graduate student or postdoctoral fellow, if elected within two years of completing Ph.D. This position shall have a two-year term.
- Four members shall be elected by the APSUO members each year, except in years when the student/postdoctoral fellow position is being filled, when up to five members may be elected.
- To promote representation of smaller interest groups, a weighted system of voting shall be used. Each ballot may select the number of candidates that equals to the number of expected vacancies, with the first choice assigned a number that equals to the number of expected vacancies, the second choice assigned a number that equals to the number of expected vacancies minus one, and so on.

QUESTIONS



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